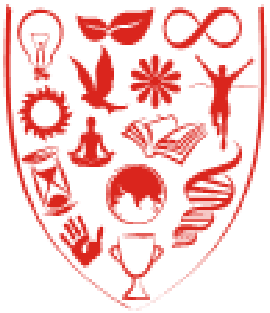
# STUDY OF BIODIVERSITY IN A SACRED GROVE-NAI-KA-NATH

**Research Protocol**
**For Registration for Ph.D. Programme**

*By*
**Vijay Choudhary**



*Under the Guidance of*
**Dr. Varsha Gupta**
Professor, JECRC University, Jaipur

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**JECRC UNIVERSITY, JAIPUR**

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# INTRODUCTION

## Biodiversity

Biodiversity is the variety of all species on earth. It includes different plants, animals, birds and micro-organisms, their genes, their habitats and all the ecosystems. (Terrestrial, Marine and Freshwater)

## Levels of biodiversity

1. Biological or ecosystem diversity
2. Species diversity
3. Genetic diversity

## Method of biodiversity conservation;

1. In-situ conservation – This is the most effective way of Biodiversity Conservation. It is on site conservation of species in their natural habitats.

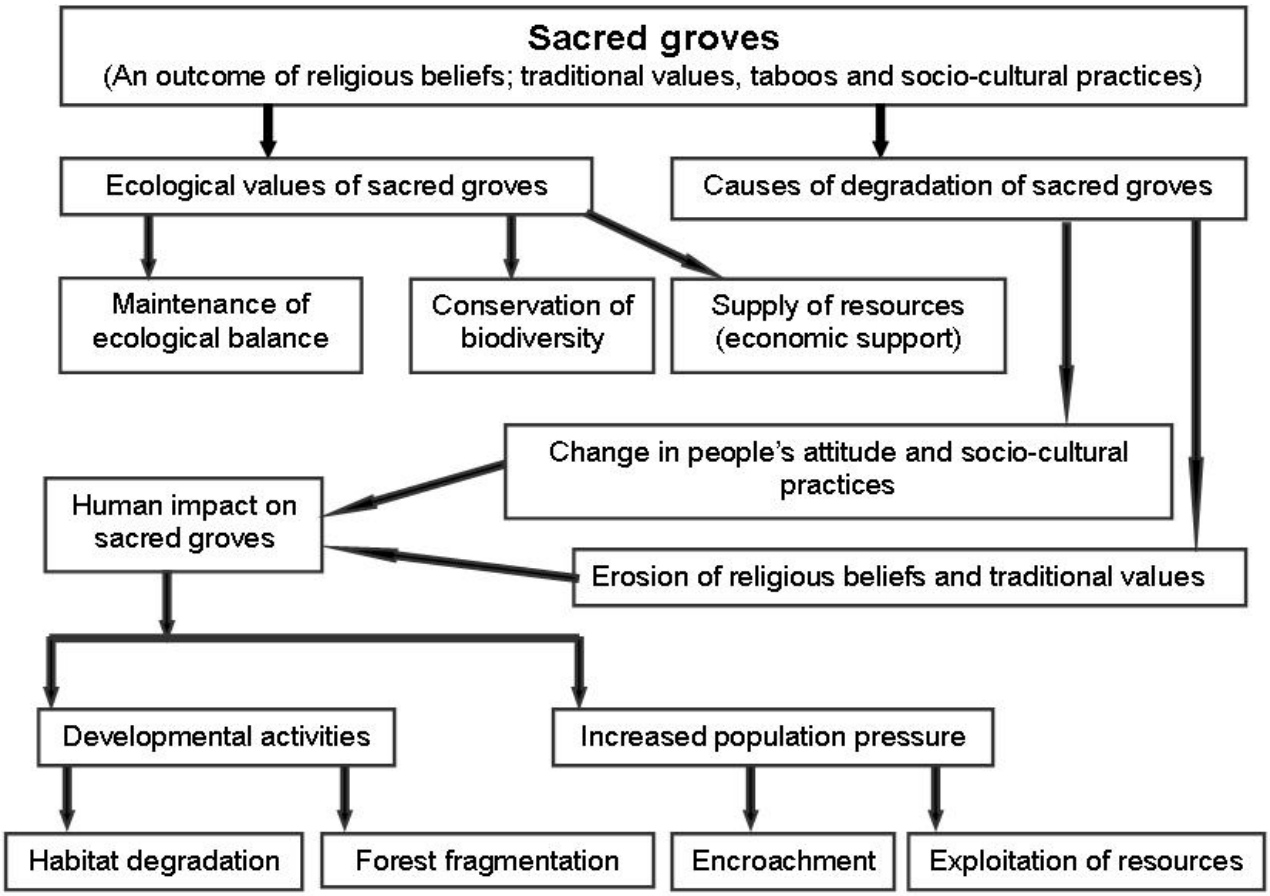
   Example-National Parks, Sanctuaries, Tiger Reserves, Biosphere Reserves, Closed areas, Reserve Forests, Sacred Groves etc.
2. Ex-situ conservation – conservation of species outside their natural habitats is called ex-situ conservation. Plants and animals species are conserved in botanical gardens and zoological gardens, seeds are conserved in seed banks (gene bank) or some other suitable forms by mean of tissue culture techniques.
   Example- Gene banks or Seed banks, Germ-plasm storages, live museums, Botanical gardens, Zoological gardens, Aquariums, Snake parks etc.

## Sacred grove

Sacred groves (SGs) are forest fragments of varying sizes, which are communally protected, and which usually have a significant religious connotation for the protecting community. Hunting and logging are usually strictly prohibited within these patches. Indian SGs are sometimes associated with temples /monasteries / shrines or with burial grounds. Sacred groves are not only important sites for regional biodiversity but also provide vital ecosystem services to local people. Around 14,000 SGs have been reported from all over India, which act as reservoirs of rare fauna, and more often rare flora, amid rural and even urban settings. The Sacred Groves found in India can basically be classified under three categories (based on analysis of studies on sacred groves):

1. Traditional Sacred Groves – It is the place where the village deity resides, who is represented by an elementary symbol.
2. Temple Groves – Here a grove is created around a temple and conserved.
3. Groves around the burial or cremation grounds.

Sacred Groves are also culturally important. Various cultural and religious festivals are often arranged by local people within the temples of the sacred groves.


Sacred groves
(An outcome of religious beliefs; traditional values, taboos and socio-cultural practices)
Ecological values of sacred groves
Causes of degradation of sacred groves
Maintenance of ecological balance
Conservation of biodiversity
Supply of resources (economic support)
Change in people's attitude and socio-cultural practices
Human impact on sacred groves
Erosion of religious beliefs and traditional values
Developmental activities
Increased population pressure
Habitat degradation
Forest fragmentation
Encroachment
Exploitation of resources

## Biodiversity conservation in sacred groves

Sacred groves act as an ideal centre for biodiversity conservation. Several plants and animals that are threatened in the forest are still well conserved in some of the sacred groves. Sacred groves occur in many parts of India, particularly where the indigenous communitys live. These areas also provide habitat, water and nest-sites for wildlife and birds. It has been observed that several medicinal plants that are not to be found in the

forest are abundant in the sacred groves. Further, rare, endangered, threatened and endemic species are often concentrated in sacred groves. The sacredness, religious beliefs and taboos play a significant role in promoting sustainable utilization and conservation of flora and fauna of the region.

## Gene protection by sacred groves

Sacred groves are containing various plant and animal genes to protect the future of natural ecosystems and ecological balance. (SGs also protect species that have become extinct in neighboring areas ) Sacred grove is a natural laboratory, a habitat, a gene bank, and a store-house of various-medicines. They support many species of birds and several other species of animals. It has a water pool where several species of fish, water birds are found. Sacred groves protect viable seeds that germinate naturally amidst home/enclosures. Seed collection from species growing in sacred groves, and afforestation of local rare and threatened plants and trees.

## Tradition of sacred grove conservation

Sacred grove- A fine example for community based nature conservation without any external support.

Groves are age-old traditional nature conservation practices adopted by the communities throughout the world. The tradition of protecting Peepal, Gular and Bargad trees is not only found in Rajasthan but also in other states of India. People do not harm sacred groves mainly because of socio-religious traditions and fear of the unknown, believing that those who cut or use an axe in a sacred grove may be harmed by the presiding deity.

Resources that are traditionally obtained from trees and plants located in sacred groves include fodder, fruits, dry fallen wood, seeds and ethno-medicine.

## REVIEW OF LITERATURE

1. Gold & Gujar (1989) in their article “Of Gods, trees and boundaries: Divine conservation in Rajasthan" gave a vivid description of several stories from Rajasthan that illustrate the cultural conviction that deities can and will protect the purity and intequity of their domains, either reinforcing the efforts of devotees or independently of human efforts.

**2.** Singh & Saxena (1988) had carlier studied sacred grove in rural landscape, in their study – A case study of Shekhala village in Rajasthan, they gave a detailed landscape level analysis of biodiversity management in a typical village Shekhala in Jodhpur district of Rajasthan. Details of land use pattern, human and cattle populations in the village were provided. The sacred grove covered an area of 83 ha (4.7% of total land-use cover) and 39 plant species. About 10% of fuel wood requirement, 20% of livestock feed, and 40% of other NTFPs were met from the scared grove. Detailed analyses of people's perceptions regarding ecosystem degradation were given. The paper concluded that the utilization of biodiversity needs to be looked into at the scale of village landscape; biodiversity in scared grove could be enhanced through improvement in productivity in other lands; and biodiversity conservation can be enhanced only when the people realize economic benefits from conservation.

**3.** According to Pandey (1998a) there are about 25,000 sacred groves in Rajasthan. These sacred groves are currently facing threat due to clear felling, mining, quarry, encroachment and various other factors. Many programmes have been launched to conserve these sacred forests.

**4.** Pandey (1998b) in a Papers Presented in the National Conference on Conservation of Sacred Groves and Ecological Heritage Sites, classified the sacred groves of Aravallis and Vindhyas which be classified into 3 categories viz., (1) groves on the top of the hillocks where people worship Bheruji, Baswi, Mataji etc., (2) Groves dedicated to Lord Mahadeo; (3) A single tree.

**5.** Jha at al. (1998) gave descriptions of Oran's (sacred groves) in two villages - Peepasar and Khejarli - of Nagaur and Jodhpur districts, respectively of Rajasthan. The four well-preserved Oran's in Peepasar cover an area of 36.8 ha (range 2.08 ha to 17.18 ha) while the one degraded Oran's in Khejarli covers an area of 157.56 ha. Both villages are inhabited by Bishnois. The paper gave a historical account of the Oran's as well as the area, species composition and nature of resource use in the Orans. They also suggest several strategies for conservation of the Orans.

**6.** Kumar (1998) in his article "Sacred Groves the Virgin Forests" stated that they are the homes of many medicinal plants; they prevent the spread of deserts and have excellent water retention capacity. These sacred groves are deteriorating at an alarming rate due to various reasons. It is very important to preserve the divine treasures of national heritage for future generations.

**7.** Chatterjee (1999) suggested that the groves have come under the increasing threat of human exploitation, and called for management strategies for their revival.

**8.** Bhasin (1999) dealt with the religious and cultural aspects of a sacred grove of Sitabari in Rajasthan. The grove is of great socio-religious importance to Sahariya tribals. It serves as a rallying point of a Sahariya rights movement. The grove is experiencing a variety of pressures - grazing, illicit tree cutting, etc.

**9.** Kutty (2001) suggested that the kavus and associated ponds constitute unique ecological systems

that are integrated with the life and culture of people in Kerala. The belief that gods live in the sacred groves conserved them. But today many sacred groves are threatened and have been altered in terms of size and vegetation structure.

**10.** Ramanujam et al. (2002) described sacred groves as patches of natural vegetation demarcated by ancient societies and protected on the basis of religious practices and cultural traditions. They are distinct segments of various landscapes containing trees and other forms of life and geographical features. It is very important to protect these sacred groves in order to maintain the ecological balance.

## STATEMENT OF THE RESEARCH PROBLEM

Study of Biodiversity in a Sacred Grove-Nai-Ka-Nath.

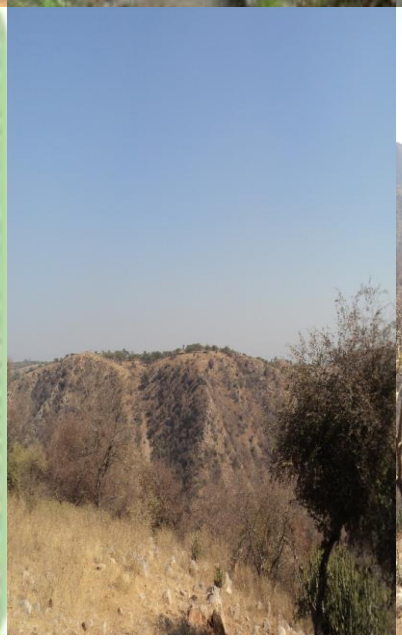
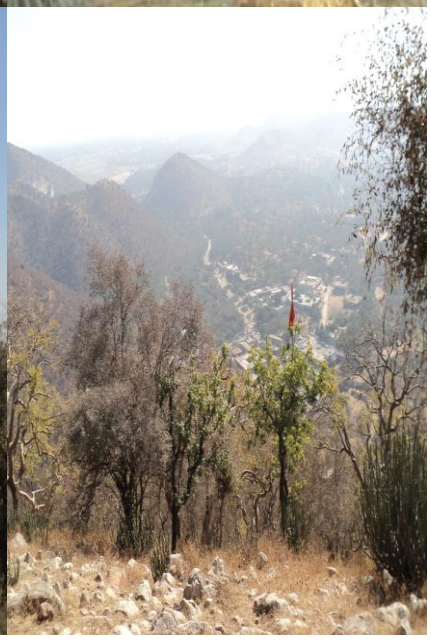
‘

## OBJECTIVES OF THE STUDY

1. To study the biodiversity of the region.(Nai-Ka-Nath)
2. To study the present methods of conservation.
3. To study the current problems of biodiversity conservation of the region.
4. To study the effect of biodiversity degradation on local Peoples.
5. To Prepare a Proposal for MOEF for future study.

## SCOPE OF THE STUDY

1. Study of floral and faunal species found in the sacred grove.
2. Listing of flora according to their characteristics like medicinal, religion, food, fodder, timber etc.
3. Utilization of various plant species by the fauna of the area for feeding, perching, nesting, comafledge etc.
4. Other interaction between various species found in area like pollination etc.
5. Enlisting of flora & fauna according to their conservational status as per wildlife act schedules.
6. Anthropogenic significance of floral and faunal species.
7. Study of present status of conservation practices in vogue.
8. Suggestion about future strategies for conservation of the sacred grove.

## SIGNIFICANCE OF THE STUDY

Biodiversity is the life support system of our planet- we depend on it for the air we breathe, the food we eat, and the water we drink. Biodiversity is the cornerstone of our existence on earth. Indigenous communities all over the world lived in harmony with the nature and conserved its valuable biodiversity. Medicines originating from wild species, have saved millions of lives and alleviated tremendous suffering. 40% of all prescriptions are for medicines that originated from plants and animals. Wetlands filter pollutants from water, trees and plants reduce global warming by absorbing carbon-di-oxide, and bacteria and fungi break down organic material and fertilize the soil. Sacred groves in urban landscapes act as "lungs" to the city as well, providing much needed vegetation cover.

We literally need to conserve biodiversity since our lives depend on it!

## LIMITATIONS

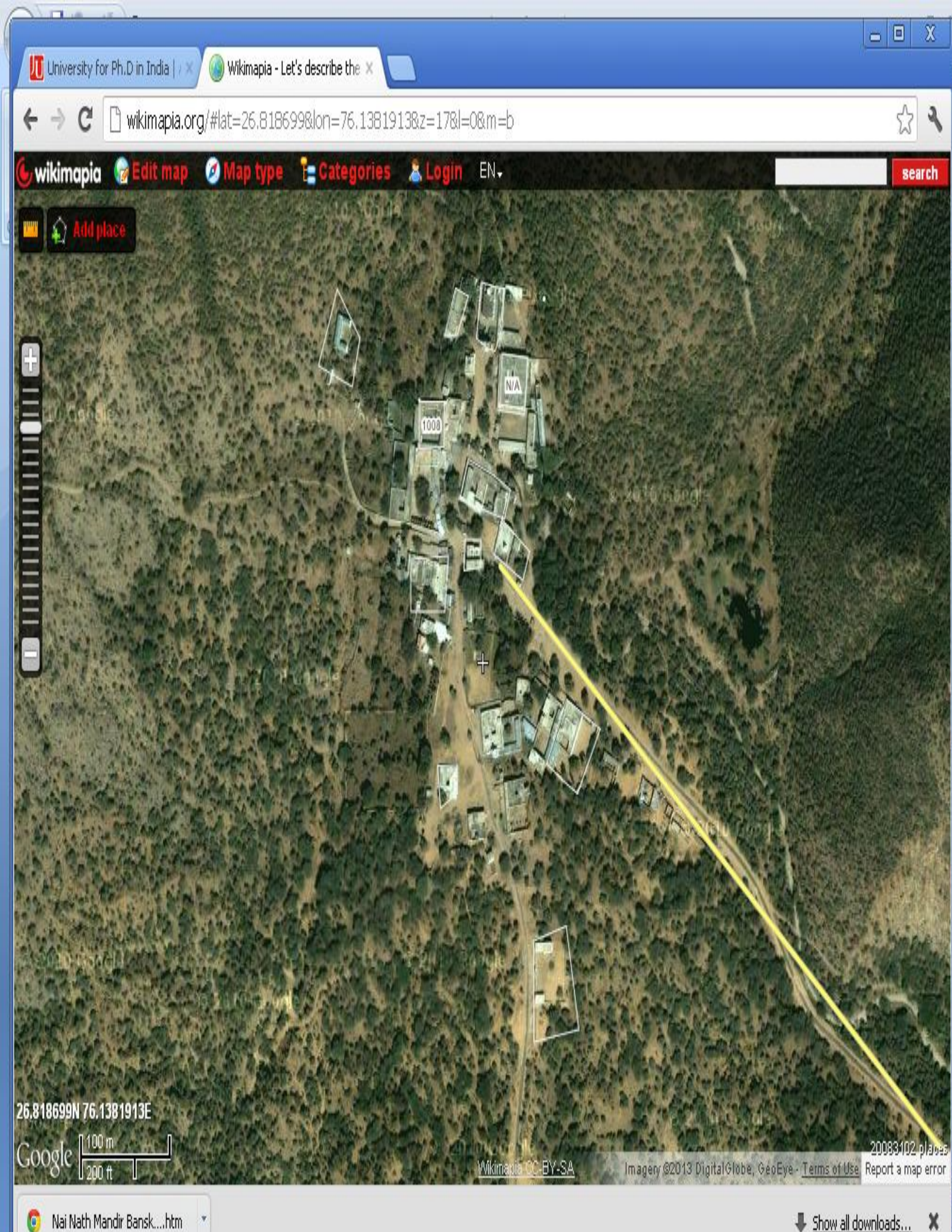
1. Only enlisting of floral and faunal species is possible.
2. Study of Anthropogenic significance will be dan.
3. Although the species will be identified, the genetic profile of species will not be possible because of time constraint as well as instrumentational constraints.

## STUDY AREA (NAI-KA-NATH (BASSI, BANSKHO) RAJASTHAN)

A historical temple of Bhagwan Shiva, surrounded by hills. Coordinates: 26°49'12"N 76°8'15"E

Nearby cities: Bassi, Banskho, Dausa, Bandikui, Madhogarh, Murari lal Choudhary village. Nai-Ka-Nath temple is located 8 km away from Banskho station. One discovers a temple which is famous for historical interest in harmony with the local landscape. The temple is a place where visitors from all over Madhogarh and nearby villages come and offer prayers. Every Monday a fair is held near the temple and a fair of grand scale is there on Maha shivratri people from nearby villages come in thousands by buses, camels, cycles, cars and whatever mode of transport is available to offer their prayers to shiva.

## GOOGLE MAP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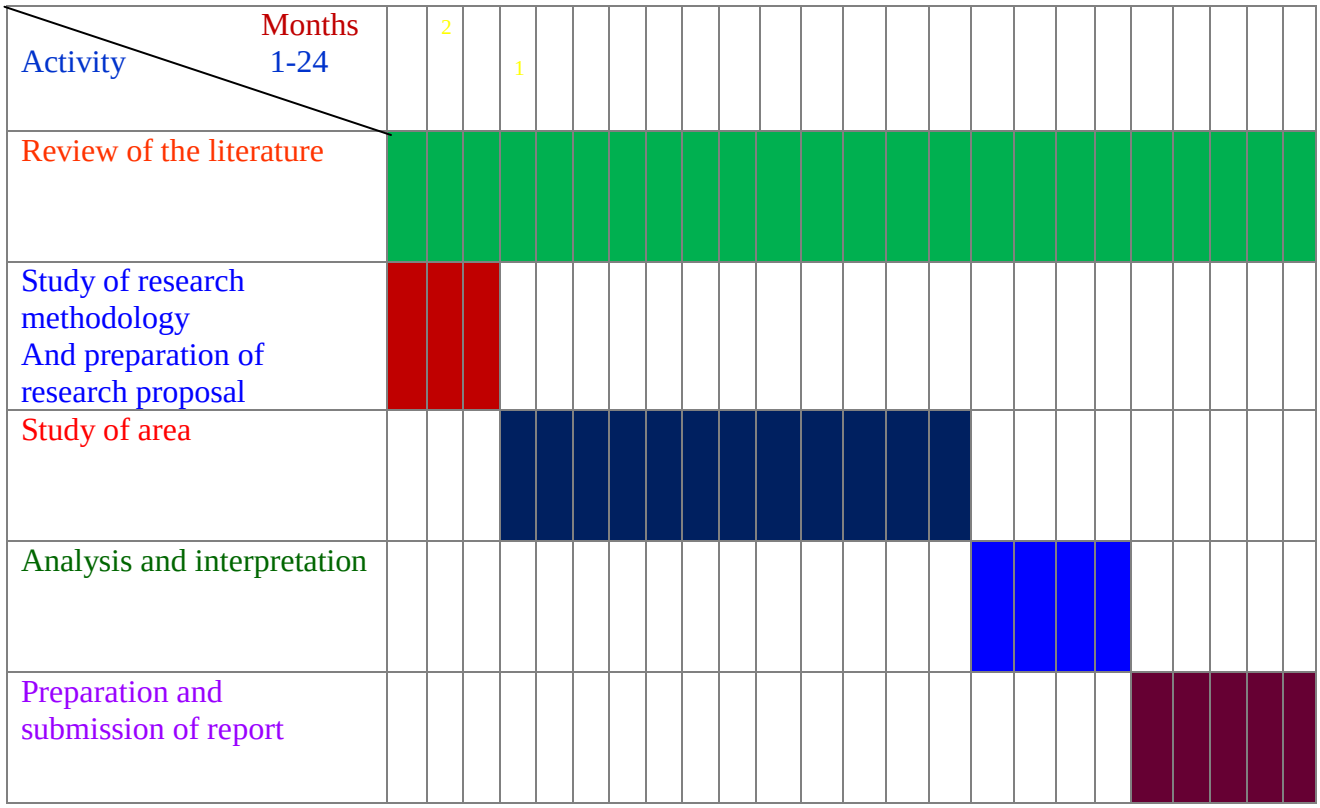
## MONTH WISE PLAN OF WORK

| | |
|---|---|
| January 2013 to December 2014 (24 months) | Review of the literature |
| January 2013 to March 2013 (3 months) | Study of research methodology And preparation of research proposal |
| April 2013 to March 2014 (12 months) | Study of the area |
| April 2014 to July 2014 (4 months) | Analysis and interpretation of data |
| August 2014 to December 2014 (5 months) | Preparation and submission of report |
| | Total time (expected) – 24 months |

## MONTH WISE PLAN OF WORK (GRAPHICAL REPRESENTATION)

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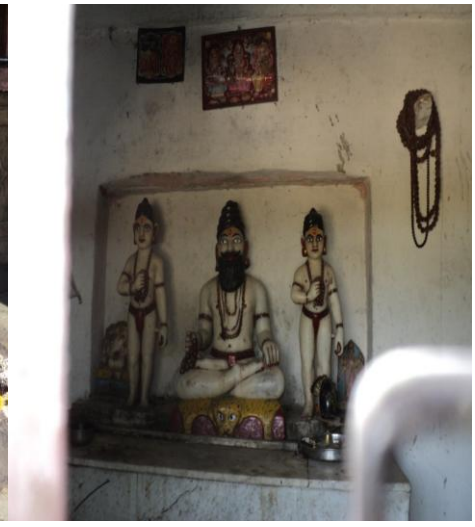
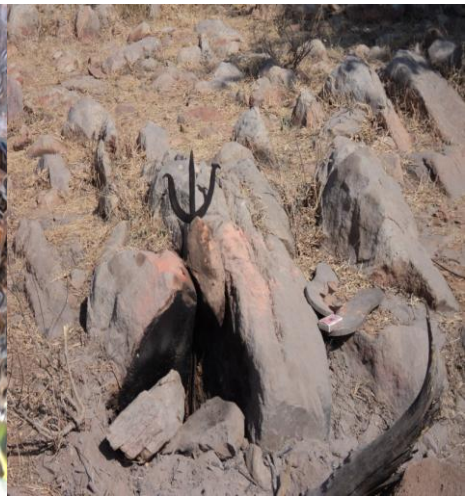
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